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EXAMINER	
LAVARIAS, ARNEL C	

ART UNIT	PAPER NUMBER
2872	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/655,354	NAKAGAWA, SHUJI	
	Examiner	Art Unit	
	Arnel C. Lavarias	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/21/04,9/3/03*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) *6-8,15-17 and 20-22* is/are withdrawn from consideration.

5)☒ Claim(s) *1-5* is/are allowed.

6)☒ Claim(s) *9-14,18 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 September 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/3/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species 1 (Claims 1-5, 9-14) in the reply filed on 12/21/04 is acknowledged.

2. Claims 6-8, 15-17, 20-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 12/21/04.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

4. The drawings were received on 9/3/03. These drawings are objected to for the following reason(s) as set forth below.

5. The drawings are objected to because of the following informalities:

Figure 4- Reference label 'S(32)' should read '32'.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an

amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within *the range of 50 to 150 words*. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

7. The abstract of the disclosure is objected to because the abstract is too long.

Correction is required. See MPEP § 608.01(b).

8. The disclosure is objected to because of the following informalities:

Page 4, line 7- 'computers' should read 'computes'

Page 5, lines 8, 15; Page 6, line 17, Page 8, line 4- delete the extra 'glass' in the lines

Page 18, line 7- 'lens;' should read 'lens);'

Page 27, line 22- '(304)' should read '(S304)'

Page 32, line 22- 'if' should read 'If'

Page 50, line 4- 'efficient' should read 'efficiently'.

Appropriate correction is required.

Claim Objections

9. Claims 9-14, 18-19 are objected to because of the following informalities:

Claim 9, lines 24, 25; Claim 12, line 13; Claim 18, line 7- 'presence/absence' should read 'presence or absence'

Claim 11 recites the limitation "the image information generation device" in lines 7-8. However, it is unclear which device this limitation refers to since this device is recited in both Claims 9 (line 34) and 11 (line 3).

Claim 11 recites the limitation "the high-magnification image information" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "the slide glass" in line 7. There is insufficient antecedent basis for this limitation in the claim. It is suggested that "the slide" be used instead.

Claim 19 recites the limitation "the second field size section for which the high-magnification is not obtained" in lines 3-5. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claim 18, as best understood, is rejected under 35 U.S.C. 102(e) as being anticipated by Perz et al. (U.S. Patent Application Publication US 2004/0202357 A1).

Perz et al. discloses a method of generating a high-magnification composite image of a predetermined area of a sample (See for example Abstract; Figures 1-5), comprising dividing a predetermined area of the sample into field sections corresponding to a high-powered objective lens (See Figures 7-11; Paragraphs 0039, 0057-0065); checking presence/absence of sample image information about the sample for each of the divided field sections (See Figures 7-11; Paragraphs 0039, 0057-0065); obtaining a high-magnification image using the high-powered objective lens for the field section determined in the check to have the sample image information (See Figures 7-11; Paragraphs 0032-0039, 0057-0069), and generating a high-magnification composite image of the sample by combining the obtained high-magnification image corresponding to a relative position of the field size section (See Figures 7-11; Paragraphs 0096-0097).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 9, 12, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglass et al. (WO 97/20198) in view of Wilhelm et al. (U.S. Patent No. 5671288).

Douglass et al. discloses a microscopic image capture apparatus and method (See for example Figures 1-5), the apparatus comprising a low-powered objective lens (See 44 in Figure 2; Pages 10-12); a high-powered objective lens (See 44 in Figure 2; Pages 10-12); a switch device switching between the low-powered objective lens and the high-powered objective lens (See 44 in Figure 2); a stage loaded with a sample storage device (See 38 in Figure 2); an illumination device illuminating a sample stored by the sample storage device (See 48 in Figure 2); an image information obtaining device obtaining image information about the sample by capturing a sample image generated using the low-powered objective lens and the high-powered objective lens (See 42, 25 in Figure 2; Pages 10-12); a stage drive mechanism transferring the stage on a plane orthogonal to an optical observation axis of a microscope (See 38 in Figure 2; 120, 122 in Figure 3); a high-magnification field section device dividing a low-magnification image of the sample obtained using the low-powered objective lens (See 23, 25, 31, 114, 116, 118, 120, 122,

124 in Figures 2-3; Figures 10-12; Pages 10-12); a sample image presence or absence check device checking presence or absence of sample image information for each of the low-magnification field sections; a high-magnification image capture device obtaining a high-magnification image by the high-powered objective lens from the high-magnification field sections determined to have the sample image information by the check device (See 42, 25 in Figure 2; Pages 10-12); and an image information generation device (See 23, 25, 27, 31 in Figure 2; 102, 104 in Figure 3; Pages 2, 6-7, 10-12) generating a high-magnification composite image having same field (i.e. all of the high-magnification images mosaicked together from a particular position are taken from the same field of the low-magnification image at the same position) as the low-magnification image by combining the obtained high-magnification images in corresponding positions of high-magnification field sections. It is noted that the microscopic image capturing method steps follow from the above apparatus, and that Douglass et al. additionally discloses the steps of dividing an entire area of a slide loaded with a sample into first field size sections corresponding to a low powered objective lens, and obtaining a low magnification image of the slide for each of the first field size sections using the low powered objective (See Figure 12; Pages 10-12). Douglass et al. lacks dividing the low magnification image of the sample into high-magnification field sections corresponding to field of the high-powered objective lens in the high magnification field section device. However, Wilhelm et al. teaches a method and apparatus for assessing specimens on a microscope slide (See for example Abstract), wherein captured low magnification fields of view are divided into high magnification field sections which correspond to the field of

view of a high magnification objective lens (See for example Figures 4-5; col. 5, line 66-col. 6, line 20). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the high magnification field section device apparatus and method of Douglass et al., further divide the low magnification image of the sample into high-magnification field sections corresponding to field of the high-powered objective lens, as taught by Wilhelm et al., to simplify identifying, locating, and scanning of the various regions of the sample.

14. Claims 10, 13, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglass et al. in view of Wilhelm et al., as applied to Claims 9, 12 above, and further in view of Perz et al.

Douglass et al. in view of Wilhelm et al. discloses the invention as set forth above in Claims 9, 12, except for the information generation device including a dummy data assignment device for assigning dummy data predetermined to be close to a background of a sample image as image information about the high-magnification size section not captured by the high-magnification image capture device. However, Perz et al. teaches a method of acquiring image data from a microscope system (See for example Figures 1-4), wherein particular values (i.e. a silhouette map) are assigned (See 140, 150 in Figure 1) to those field of view regions to designate whether the data in those regions are of interest or not, i.e. '1' corresponds to specimen content of interest and '0' corresponds to specimen content not of interest or no specimen content (See for example Figures 7-11; paragraphs 0034-0036, 0061-0065, 69-73). Further, although Perz et al. does not specifically disclose dummy data similar to a background of a sample image being assigned to the

second field size section for which the high-magnification image is not obtained, one of ordinary skill in the art would have known to select any particular value to be assigned to regions that are and are not of interest, such as the '1' and '0' values disclosed by Perz et al., or even values which may be similar to image or background data, so long as these values may be correlated with regions that are and are not of interest to the operator. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the method of Wilhelm et al. in view of Douglass et al., further include dummy data similar to a background of a sample image be assigned to the second field size section for which the high-magnification image is not obtained, as taught by Perz et al., to prevent unwanted scanning of non-interesting regions of the sample, thus reducing scanning time and memory storage requirements.

15. Claim 11, 14, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglass et al. in view of Wilhelm et al. as applied to Claim 9, 12, above, and further in view of Kuan et al. (U.S. Patent No. 5757954).

Douglass et al. in view of Wilhelm et al. discloses the invention as set forth above in Claim 9, 12, except for an additional information generation device that generates image information containing a different magnification, position, or area according to the high-magnification image generated by the first image information generation device. However, Kuan et al. teaches a conventional method for assessing samples on a microscope slide for objects of interest in the recorded images (See Abstract; Figures 2-3). In particular, multiple high magnification field of view images of a sample location are recorded. An analysis is performed to determine the content in each image, and the

positions for each of those images that indicate little to no content, are too dense, or have an air bubble, are recorded and eliminated from further processing (See 502, 536 in Figure 1A; 562, 550 in Figure 1B; col. 4, line 28-col. 5, line 25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the apparatus of Douglass et al. in view of Wilhelm et al. further include an additional information generation device that generates image information containing a different magnification, position, or area according to the high-magnification image generated by the first image information generation device, as taught by Kuan et al., for the purpose of reducing scanning time and storage requirements for the scanning operation of the microscope.

16. Claim 18, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilhelm et al. in view of Douglass et al.

Wilhelm et al. discloses a method of generating a high-magnification composite image of a predetermined area of a sample (See for example Abstract; Figures 4-7), comprising dividing a predetermined area of the sample into field sections corresponding to a high-powered objective lens (See col. 5, line 66-col. 6, line 20); checking presence/absence of sample image information about the sample for each of the divided field sections (See col. 7, line 22-col. 14, line 48); and obtaining a high-magnification image using the high-powered objective lens for the field section determined in the check to have the sample image information (See col. 13, line 42-col. 16, line 65). Wilhelm et al. does not specifically disclose generating a high-magnification composite image of the sample by combining the obtained high-magnification image corresponding to a relative position of

the field size section. However, such imaging tiling techniques are well known in microscopy, particularly in relation to automated microscope slide scanners. For example, Douglass et al. teaches a conventional automated microscope slide scanner (See for example Figures 1-2), wherein a sample is scanned under low magnification, candidate positions of interest (generally where abnormal cells are located) are located, and high magnification scans are performed at these positions. Multiple high and low resolution images are recorded during the scanning processes. All of the stored high resolution images (and similarly all of the low resolution images) are viewed as a mosaic or composite image for further review by the operator (See Pages 2, 6-7, 10-12). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the method of Wilhelm et al. further include generating a high-magnification composite image of the sample by combining the obtained high-magnification image corresponding to a relative position of the field size section, as taught by Douglass et al., to produce a global, high-resolution, overview images of the various positions of interest, thus reducing the burden on the operator to "remember" or "memorize" the various images, and instead concentrate on reviewing and evaluating the images for possible sample abnormalities.

17. Claim 19, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Perz et al.

Perz et al. discloses the invention as set forth above in Claim 1. Perz et al. additionally discloses assigning particular values (i.e. a silhouette map) to those field of view regions to designate whether the data in those regions are of interest or not, i.e. '1'

corresponds to specimen content of interest and '0' corresponds to specimen content not of interest or no specimen content (See for example Figures 7-11; paragraphs 0034-0036, 0061-0065, 69-73). Perz et al. does not specifically disclose dummy data similar to a background of a sample image being assigned to the second field size section for which the high-magnification image is not obtained. However, one of ordinary skill in the art would have known to select any particular value to be assigned to regions that are and are not of interest, such as the '1' and '0' values disclosed by Perz et al., or even values which may be similar to image or background data, so long as these values may be correlated with regions that are and are not of interest to the operator. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the method of Perz et al., further include dummy data similar to a background of a sample image be assigned to the second field size section for which the high-magnification image is not obtained, to prevent unwanted scanning of non-interesting regions of the sample, thus reducing scanning time and memory storage requirements.

18. Claim 19, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilhelm et al. in view of Douglass et al. as applied to Claim 18 above, and further in view of Perz et al.

Wilhelm et al. in view of Douglass et al. discloses the invention as set forth above in Claim 18, except for dummy data similar to a background of a sample image being assigned to the second field size section for which the high-magnification image is not obtained. However, Perz et al. teaches a method of acquiring image data from a

microscope system (See for example Figures 1-4), wherein particular values (i.e. a silhouette map) are assigned (See 140, 150 in Figure 1) to those field of view regions to designate whether the data in those regions are of interest or not, i.e. '1' corresponds to specimen content of interest and '0' corresponds to specimen content not of interest or no specimen content (See for example Figures 7-11; paragraphs 0034-0036, 0061-0065, 69-73). Further, although Perz et al. does not specifically disclose dummy data similar to a background of a sample image being assigned to the second field size section for which the high-magnification image is not obtained, one of ordinary skill in the art would have known to select any particular value to be assigned to regions that are and are not of interest, such as the '1' and '0' values disclosed by Perz et al., or even values which may be similar to image or background data, so long as these values may be correlated with regions that are and are not of interest to the operator. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the method of Wilhelm et al. in view of Douglass et al., further include dummy data similar to a background of a sample image be assigned to the second field size section for which the high-magnification image is not obtained, as taught by Perz et al., to prevent unwanted scanning of non-interesting regions of the sample, thus reducing scanning time and memory storage requirements.

Allowable Subject Matter

19. Claims 1-5 are allowed.

20. The following is a statement of reasons for the indication of allowable subject matter:

Claim 1 is allowable over the cited art of record for at least the reason that the cited art of record fails to teach or reasonably suggest a separate low-magnification dividing device and a high-magnification dividing device; a separate image information obtaining device and a high-magnification image capture device; and an image information generation device for generating high-magnification composite image information about a sample on the slide glass by generating the high-magnification image such that the relative position between the area of the high-magnification size section having the image information obtained from the image captured by the high-magnification image capture device and the area of the high-magnification size section not captured by the high-magnification image capture device can be correctly maintained. Claims 2-5 are dependent on Claim 1, and hence are allowable for at least the same reasons Claim 1 is allowable.

Conclusion

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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2/15/05